RNA-directed cell fate reprogramming

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- Our lab is developing a platform technology to direct the conversion of one cell type into another, for biomedical applications e.g.
  - Conversion of pancreatic exocrine cells into new beta islet cells for diabetes therapy
  - Conversion of cochlear non-sensory cells into new hair cells to restore hearing loss
- We use bioinformatics and high throughput combinatorial screening to identify mRNA combinations for cell reprogramming
  - mRNAs encode transcription factors that reprogram gene regulatory networks
- mRNA as a vector for cell reprogramming therapies is highly advantageous
  - avoids sustained overexpression of transcription factors, leaves no genetic footprint
- We are interested to collaborate on:
  - Disease indications amenable to cell reprogramming as a therapeutic approach
  - Non-coding RNAs that control gene expression
  - mRNA modifications to enhance gene expression, suppress immunogenicity etc
  - improved mRNA delivery, particularly in vivo